

	Solo Universal Journal of Islamic Education and Multiculturalism E-ISSN: 2988-3520 Vol.4, No.01, 2026, pp. 49-62 DOI: https://doi.org/10.61455/sujie.m.v4i01.612	
Received March 25, 2026	Revised July 21, 2026	Accepted August 13, 2026

Integration of Artificial Intelligence in Islamic Education: Opportunities, Challenges, and Ethical Implications

Haya Huwaida¹, Muthoifin^{2}* 

¹Sekolah Tinggi Ilmu Dakwah Mohammad Natsir Solo Raya, Surakarta, Indonesia

²Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

¹hayaaida6@gmail.com, ^{2*}mut122@ums.ac.id

Abstract

Objective: This study aims to analyze the opportunities, challenges, and ethical implications of the integration of Artificial Intelligence (AI) in Islamic Education and examine its relevance to the development of effective, adaptive, and Islamic values-based learning. **Theoretical framework:** This study uses a theoretical framework that combines the theory of technology integration in education, the concept of digital learning, and Islamic educational values sourced from the Qur'an and Hadith. This framework is used to understand how AI can be implemented without neglecting the ethical principles and goals of Islamic education. **Literature review:** Various studies show that AI is able to improve learning effectiveness through personalization of materials, automation of evaluations, and the provision of broader learning resources. **Methods:** This study uses a literature review method by analyzing various relevant scientific articles, books, and academic documents regarding AI and Islamic Education. Data were collected through a search of national and international scientific sources published in the last five years, then analyzed in a descriptive-qualitative manner. **Results:** The results show that AI has great potential in supporting the transformation of Islamic Education through more personalized, interactive, and efficient learning. On the other hand, the implementation of AI faces challenges in the form of human resource readiness, technological infrastructure, data security, and the need for ethical guidelines that are in accordance with Islamic values. Therefore, the use of AI needs to be balanced with character strengthening, digital literacy, and adequate supervision. **Implications:** The findings of this study provide implications for Islamic educational institutions, educators, and policymakers to formulate strategies for the use of AI that are not only oriented to learning effectiveness, but also pay attention to the ethical, moral, and objective aspects of Islamic education in forming people who have faith, knowledge, and noble character. **Novelty:** The novelty of this research lies in a comprehensive analysis that integrates the perspective of educational technology with Islamic ethical principles in the use of AI.

Keywords: artificial intelligence, islamic education, islamic ethics, digital transformation, digital learning

INTRODUCTION

To face increasingly complex global challenges, in total, the entire world, including Indonesia, in terms of the sustainability of the SDGs, can become a very important guideline

*Corresponding Author: mut122@ums.ac.id



This work is licensed under a Creative Commons Attribution 4.0 International License ([CC BY 4.0](https://creativecommons.org/licenses/by/4.0/)).

for the whole world or all countries in determining the direction of development in the era of sustainable development of waqf [1]. For the achievement of productive waqf related to the sustainability of economic law, it is based on the goals of the SDGs in Indonesia, which includes raising issues with various solutions and various basic concepts, by covering 3 aspects that need to be overcome through the perspective of sustainable productive waqf through the SDGs such as limited resources and lack of economy (poverty), the existence of inequality but injustice, and environmental degradation. In this perception, productive waqf is one of the instruments that emerges to support the achievement of SDGs goals significantly, with the potential to stimulate the achievement of the SDGs sustainable development mission [2]. In the tradition of Islamic philanthropy, waqf is not just a mechanism of social activities, but contributes significantly to the role of an instrument of economic revitalization that is planned to advance the improvement of the quality of life of the community sustainably with efficient and appropriate resource management, in maximizing through an orientation that prioritizes sustainable results in the long term [3].

The essence of this research lies in an effort to understand the position of productive waqf in the construction of the perspective of sharia economic law and its role in achieving the SDGs in Indonesia. This study aims to address the deficit in the literature by presenting a study with various reviews in detail on management to maximize the growth of productive waqf in the economy financially for continuity. Regarding what is placed on providing various access in the form of facilities such as funding, training, and support to help micro and small MSME businesses in providing market access. The contribution of productive waqf can also reduce poverty rates and create jobs, even job opportunities, which are in line with the SDGs sustainability goals. This study explains that the role of waqf in the economy can also increase the competitive advantage of MSMEs [4]. Results in supporting inclusive and equitable economic growth. As well as maximizing economic potential, which has the basic principle of social justice. Although productive waqf is very promising, there are various major challenges for management and difficulties that must be solved responsibly, for the main obstacle is the lack of deeper mastery and inadequate ability to manage the waqf [5]. This limits efforts to manage profits in the economy and productive social waqf efficiently and sustainably.

However, productive waqf has a great opportunity despite all obstacles in its management and is a problem that must be faced. Examining the lack of understanding and excellence in waqf management is one of the first obstacles in maximizing productive waqf [6]. Therefore, it is essential to improve the understanding and excellence of waqf managers and encourage cooperation with educational institutions, financial institutions, and civil society to realize synergy for productive waqf renewal [7]. In this study, it is necessary to analyze productive waqf innovations in sustainable management in the future. There needs to be synergistic and relevant benefits to be applied in accordance with the principles of sharia economic law [8].

In this study, there is a study that classifies sustainable productive waqf as an instrument in supporting the success of the development of the SDGs in Indonesia. In the expert concept and practice of managing productive waqf, this research is also expected to make a significant contribution to the development of more effective strategies and practices for waqf management in Indonesia [9]. More than that, this research study also encourages active contributions to the community to achieve the vision and mission of sustainable development, so much so that the existence of productive waqf is one of the most effective actions to face a challenge in the development of waqf in Indonesia [10].

The implications of this study indicate that strengthening productive waqf management can support the achievement of the SDGs through poverty reduction, job creation, MSME empowerment, and inclusive economic development. The novelty of this study lies in integrating the perspectives of Islamic economic law, SDG sustainability principles, and productive waqf management strategies comprehensively. This approach positions waqf not merely as a philanthropic instrument but also as a mechanism for sustainable economic

empowerment requiring professional, transparent, and collaborative governance. Accordingly, this study offers a conceptual framework connecting productive waqf optimization with sustainable development while providing strategic recommendations for waqf managers, policymakers, educational institutions, financial institutions, and communities.

LITERATURE REVIEW

The results of productive waqf research show that facilities in Sharia economic law have a significant impact on supporting and realizing the SDGs in Indonesia. In this perspective, it is very important to implement literature analysis in order to play a role in understanding and to increase its effectiveness as an instrument, i.e., the achievement of orientation with sustainable goals [11]. The literature review in this study is aimed at examining all previous reference sources related to productive waqf, issues in the implementation of its management, and the impact of participation on the sustainability of the SDGs. In understanding the background of this study, it is anticipated to provide a more specific and in-depth explanation and proposed recommendations for the expansion of productive waqf in Indonesia [12].

Referring to previous research, there are several significant research studies on the importance of productive waqf. This study presents whether waqf can optimize the quality of people's living standards by means of an effective or profitable approach or investment in a productive way [13]. In this study, more emphasis is placed on managing the importance of properly managing waqf investment so that it can be implemented optimally and more effectively and efficiently. However, in analyzing the obstacles in a challenge to managing productive waqf in Indonesia, namely a lack of understanding or knowledge deficit in the community and fairly low and weak regulations, will cause capacity constraints in productive waqf [14]. Emphasizing productive waqf as a role for the SDGs, which is included in the scope of the health sector to Education [15]. The study in this study shows that waqf can be a significant source of social investment funds and focuses on improving programs in the community to achieve the sustainability of the SDGs in Indonesia. This research also highlights that the potential of this productive waqf is very large. Obstacles in transparency and regulation can be problems that need to be addressed [16].

From this literature review, the study found that there are inequalities that are widely considered in the future [17]. Thus, there are many discussions of a study that highlights the potential of productive waqf, although few studies have analyzed in depth the social society that contributes to waqf management and in the form of matters related to regulations supported in achieving the sustainability of productive waqf in the SDGs. Therefore, it is necessary to conduct further study analysis to examine more deeply the factors of this waqf element [18].



Figure 1. Artificial Intelligence Integration in Interactive, Collaborative, and Student-Centered Educational Environments

The image illustrates the growing integration of artificial intelligence (AI) into educational environments through interactive and collaborative learning. A humanoid educational robot engages with students while the teacher facilitates classroom activities, suggesting that AI functions as a complementary tool rather than a replacement for educators. Digital screens, tablets, and learning materials demonstrate how intelligent technologies can support multimodal instruction, student participation, and personalized learning experiences. From a literature review perspective, this representation reflects scholarship emphasizing AI-assisted pedagogy, digital literacy, adaptive learning, and human–AI collaboration.

In reviewing the literature that has been desired, we can conclude that the potential of productive waqf has great potential and is relevant in playing a role in achieving the SDGs in Indonesia through productive waqf. In the analysis review, the existence of wise and optimal management, public perception, and policies can be significantly the key to optimal improvement in productive waqf [19]. This study that can play an important role in analyzing the obstacles and challenges and potentials that will be faced by productive waqf through the SDGs in Indonesia. Thus, social inequality has been identified in the analysis of this study by presenting a further study on the contribution to society in managing waqf and social waqf factors [20]. In the next research, it is proposed to provide more specific suggestions to optimize performance efficiently in productive waqf and support productive waqf through the sustainability of the SDGs in Indonesia [21].

Table 1. Synthesis of Opportunities, Challenges, and Ethical Implications of AI Integration in Islamic Education

Aspects	Key Findings	Impact on Islamic Education
Opportunities	Personalize learning through AI-based adaptive systems	Helping students learn according to their abilities and needs.
Opportunities	Access wider and faster learning resources	Facilitate access to materials from the Qur'an, Hadith, fiqh, and other Islamic sciences.
Opportunities	Automation of evaluations and assessments	Improving the efficiency of teachers' work in the learning assessment and monitoring process.
Opportunities	More effective management of education administration	Supporting the digital transformation of Islamic education institutions.
Challenge	Low digital literacy of educators	Hindering the optimal implementation of AI in learning.
Challenge	Limitations of technological infrastructure	Causing a gap in the use of AI between educational institutions.
Challenge	Dependence on technology	It has the potential to reduce students' critical thinking skills and learning independence.
Challenge	Algorithm bias and information validity	It can affect the objectivity of the information received by students.
Ethical Implications	Privacy and data security protection	Demanding safe and responsible management of student data.
Ethical Implications	Transparency of AI usage	Maintaining the principles of trust and accountability in Islamic education.
Ethical Implications	Fair access to technology	Ensuring that all learners get the same benefits from AI.
Ethical Implications	Maintaining moral and spiritual values	AI should serve as an aid, not a substitute for the teacher's role in character building.

From the table above, briefly review the main goal of focusing on productive waqf through the principles of Sharia economic law in the sustainability of the SDGs in Indonesia in order to create support from various aspects in overcoming future challenges effectively. The focus is on sustainable development, productive waqf in its management, and how to develop through social activities in the community in terms of accountability and transparency to achieve SDGs through productive waqf [22].

METHODOLOGY

This study uses the Systematic Literature Review (SLR) approach to examine the integration of Artificial Intelligence (AI) in Islamic Education, especially related to its opportunities, challenges, and ethical implications. The SLR approach was chosen because it allows researchers to identify, evaluate, and synthesize published research findings systematically and transparently [23]. Through this method, the research can provide a comprehensive overview of the development of AI studies in Islamic Education and identify research gaps that still need further exploration [24].

The data collection process was carried out through a literature search on various reputable academic databases, such as Scopus, Web of Science, Google Scholar, and Dimensions [25]. The selected literature includes journal articles, conference proceedings, academic books, and other scientific documents relevant to the research topic. The inclusion criteria include publications that discuss the application of AI in education, Islamic education, technological ethics, and digital transformation in education published in the 2020–2026 range. Meanwhile, publications that have no direct relevance to the research focus, duplicate data, or are not available in full text are excluded from the selection process [26].

Table 2. AI Integration Model Based on Islamic Values

Islamic Principles	Implementation in Educational AI
Tauhid	The use of AI is directed to support the search for knowledge and the benefit of the people.
Trust	The use of AI is done honestly, responsibly, and not abused.
Justice	AI provides equal learning opportunities for all students.
Responsibilities	Teachers remain the primary supervisors in the use of AI.
Maslahah	Technology is used to produce benefits that outweigh the harms.
Morals	The use of AI must support the formation of students' character and morals.

The research stage follows an SLR procedure consisting of identification, screening, feasibility assessment, and data synthesis [27]. At the identification stage, the researcher used keywords such as Artificial Intelligence, AI in Education, Islamic Education, Digital Learning, Educational Technology, and Islamic Ethics. Furthermore, the articles obtained were filtered based on titles, abstracts, and suitability of the content with the research objectives. Articles that meet the criteria are then analyzed in depth to obtain information about the opportunities for the use of AI, implementation challenges, and its ethical implications in Islamic Education [28].

The data that has been collected is analyzed using thematic analysis techniques. The analysis was carried out by grouping the research findings into several main themes, namely the opportunities for the integration of AI in Islamic Education, the challenges of AI implementation, the ethical implications of the use of AI, and its relevance to Islamic educational values [29]. The results of the analysis are then synthesized descriptively to produce a comprehensive understanding of how AI can be integrated into the Islamic education system effectively, responsibly, and in accordance with Islamic principles [30].

To maintain the validity and reliability of the research, the selection process and literature analysis are carried out systematically based on the criteria that have been set. In addition, the use of various literature sources from international academic databases aims to improve the quality and credibility of research findings. Thus, this method is expected to be able to produce an in-depth study of the opportunities, challenges, and ethical implications of the integration of Artificial Intelligence in Islamic Education and provide conceptual contributions to the development of Islamic education research and practice in the digital era [31].

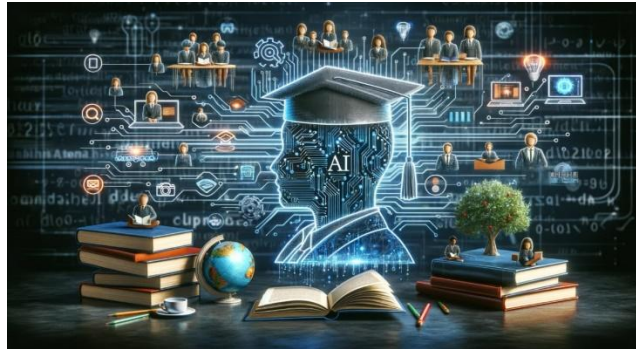


Figure 2. Artificial Intelligence and the Future of Connected, Innovative, and Inclusive Education Systems

The image presents an innovative vision of artificial intelligence transforming education through interconnected digital technologies. At the center, an AI symbol merges with a graduation cap, representing intelligent learning, academic achievement, and technological advancement. Surrounding circuits connect students, educators, classrooms, digital devices, and online learning environments, emphasizing collaboration and knowledge exchange. Books, a globe, and an open textbook symbolize traditional knowledge, global education, and continuous learning. The glowing interfaces suggest data-driven instruction, digital literacy, and personalized educational experiences. Overall, the composition illustrates how AI can integrate with educational systems to create connected, accessible, innovative, and learning opportunities across communities.

RESULTS AND DISCUSSION

Opportunities for Integrating Artificial Intelligence in Islamic Education

The results of the literature review show that the integration of Artificial Intelligence (AI) provides various opportunities in improving the quality of Islamic Education. One of the key opportunities is the creation of more personalized and adaptive learning [32]. AI technology allows learning systems to adjust materials, methods, and levels of difficulty based on the abilities and needs of each student. Thus, the learning process becomes more effective because each student obtains a learning experience that suits their characteristics.

In addition, AI can also expand access to Islamic learning resources. Various AI-based digital platforms allow students to access materials on the Qur'an, Hadith, jurisprudence, Islamic history, and other Islamic sciences more easily and quickly. The presence of AI-based educational chatbots can also help answer students' questions in real-time, supporting the independent learning process [33].

Another opportunity is increased efficiency in learning evaluation. AI can help teachers conduct automated assessments, analyze student learning outcomes, and identify students' weaknesses and strengths. This allows teachers to focus more on character development and the development of the affective aspects of students, which is one of the main goals of Islamic Education [34].

In the context of education management, AI also has the potential to improve the efficiency of the administration of Islamic schools and educational institutions. Management of academic data, attendance, learning schedules, and reporting can be done more quickly and accurately. Therefore, AI can be an important instrument in supporting the digital transformation of Islamic Education in the modern era [35].

The Challenges of Integrating Artificial Intelligence in Islamic Education

Although it offers a variety of opportunities, the results of the study show that the implementation of AI in Islamic Education also faces a number of challenges. The first challenge is the limitation of technological infrastructure. Not all Islamic educational institutions have adequate access to digital devices, internet networks, and technological resources necessary to optimally implement AI [36].

The second challenge is the low digital literacy among educators and students. Many Islamic Religious Education teachers do not have sufficient competence in utilizing AI technology as a learning medium. This condition can hinder the effectiveness of the use of AI in the education process [37].

The next challenge is the emergence of dependence on technology. The excessive use of AI has the potential to reduce students' critical thinking skills, creativity, and social interaction. In Islamic education, the relationship between teacher and student has such important spiritual and moral value that it cannot be completely replaced by technology [38].

In addition, there is a risk of algorithmic bias that can affect the objectivity of the information provided by the AI system. If the data used to train the AI system is not representative, then the results provided can also contain bias. Therefore, there is a need for continuous monitoring and evaluation of the use of AI in the Education environment [39].

Table 3. Summary of Previous Research and Research Gaps

Previous Research	Focus	Gap	Present Study
AI in General Education	AI-based learning effectiveness	Limited Islamic perspective	Integrates AI with Islamic Education values
AI Ethics	Privacy, transparency, bias	Limited Islamic context	Examines AI ethics from an Islamic perspective
Islamic Educational Technology	Digital Islamic learning	Limited generative AI focus	Examines AI opportunities, challenges, and ethics

Ethical Implications of the Use of AI in Islamic Education

Literature review shows that the ethical aspect is one of the main issues in the integration of AI in the education sector. From an Islamic perspective, the use of technology must always pay attention to moral values and the benefit of the ummah. One of the most widely discussed ethical implications is the protection of privacy and security of student data. AI systems generally collect and process large amounts of data, so adequate protection mechanisms are needed to prevent data misuse [40].

Another ethical implication is the transparency of the algorithm. Users need to understand how the AI system generates certain recommendations or decisions. The principle of transparency is in line with the concept of trust in Islam, which emphasizes honesty, openness, and responsibility in every human activity.

In addition, the principle of fairness is also an important foundation in the use of AI. Technology must provide equal benefits for all students without discrimination based on social, economic, or geographical background. In the context of Islamic Education, the application of AI must support the creation of justice and equitable access to education [41].

The use of AI must also maintain human values. AI should serve as a tool that supports the role of teachers, not replace them entirely. Teachers still have a major role in guiding, educating, and instilling moral values in students [42].

AI Integration Model Based on Islamic Values

Based on the results of the literature synthesis, the integration of AI in Islamic Education needs to be built on the foundation of Islamic values so that its use is not only oriented to efficiency, but also to the formation of the character and spirituality of students. The integration model proposed in this study consists of four main principles, namely monotheism, trust, justice, and responsibility.

The principle of monotheism places all development and utilization of technology as part of an effort to get closer to Allah SWT. Technology is seen as a means to gain knowledge and provide benefits for mankind.

The trust principle demands the responsible use of AI, including in data management, information delivery, and decision-making. Every party involved in the use of AI must maintain trust and avoid misuse of technology.

The principle of fairness requires AI to provide equal access to education to all students without discrimination. Meanwhile, the principle of responsibility emphasizes the importance of human supervision of the use of AI so that technology remains within the ethical corridor and goals of Islamic Education.

This model shows that the success of the integration of AI in Islamic Education is not only determined by the sophistication of technology, but also by the ability of educational institutions to internalize Islamic values into the process of utilizing this technology.

Summary of Research Results

Overall, the results of the study show that AI has great potential to improve the quality of Islamic education through more personalized, efficient, and accessible learning. However, its implementation faces various challenges, such as limited infrastructure, low digital literacy, technology dependence, and ethical issues. Therefore, the use of AI in Islamic Education must be carried out wisely by making the values of monotheism, trust, justice, and responsibility as the main foundation so that technology can provide optimal benefits while supporting the goals of Islamic Education in forming a generation that is knowledgeable, faithful, and noble [43].

Discussion

The findings of this study indicate that artificial intelligence (AI) has the potential to transform Islamic Education by improving personalization, accessibility, assessment, and educational administration. However, technological innovation cannot be separated from pedagogical, ethical, and spiritual considerations. In Islamic Education, AI should therefore be understood as an educational instrument whose value depends on how responsibly it is designed, implemented, supervised, and aligned with Islamic educational objectives. This interpretation is consistent with the literature synthesis, which identifies opportunities alongside infrastructure, literacy, dependence, bias, privacy, transparency, and fairness concerns.

AI as a Tool for Personalized and Accessible Learning

One important finding is that AI can support personalized and adaptive learning. AI-based systems can adjust learning materials and levels of difficulty according to students' abilities, needs, and learning progress. In Islamic Education, this opportunity is relevant because students differ in their prior knowledge of the Qur'an, Hadith, fiqh, Islamic history, and other subjects. Adaptive technologies can provide differentiated explanations and learning

activities. The literature reviewed indicates that digital platforms can broaden access to Islamic learning resources and provide rapid assistance through AI-based educational tools.

Nevertheless, personalization should not replace pedagogical relationships. Islamic Education emphasizes knowledge together with faith, character, discipline, and moral responsibility. AI can provide information and learning support, but it cannot independently provide spiritual example, emotional understanding, and moral guidance. Consequently, personalized AI learning should remain embedded within teacher-guided educational processes. This supports the finding that AI should complement rather than substitute the educator's role [34].

AI and Efficiency in Assessment and Educational Management

The study further finds that AI can increase efficiency in assessment and educational administration. Automated assessment, analysis of learning outcomes, attendance management, scheduling, and academic reporting can reduce routine workloads and allow educators to devote greater attention to instruction and character-building activities [35]. However, efficiency should not become the primary measure of educational success. Automated assessment may prioritize measurable academic outcomes while overlooking affective, spiritual, and behavioral dimensions central to Islamic Education. Teachers therefore need to interpret AI-generated results critically and combine them with observation, dialogue, and contextual understanding. AI-generated recommendations should be treated as supporting evidence rather than unquestionable judgments.

Infrastructure, Digital Literacy, and Technology Dependence

The findings identify inadequate technological infrastructure and limited digital literacy as major barriers to AI integration. Differences in internet connectivity, devices, technical support, and institutional resources may create unequal opportunities among Islamic educational institutions. Such disparities can produce a digital divide in which better-equipped institutions gain greater benefits from AI [36]. Therefore, AI integration requires institutional investment, teacher training, and sustainable technological support.

Digital literacy is equally important. Educators need more than operational knowledge of AI tools; they must understand how AI generates information, evaluate outputs, identify errors and bias, and use AI responsibly. Students also require critical digital literacy so that they do not accept AI-generated information without verification. In Islamic Education, this is particularly important because inaccurate religious information may influence beliefs, practices, and moral understanding.

Another concern is excessive dependence on technology. Overreliance on digital tools may weaken critical thinking, creativity, independence, and social interaction [38]. Therefore, AI should encourage students to ask questions, compare sources, reason independently, and engage in discussion rather than simply receive ready-made answers. Teachers should establish activities in which AI serves as a starting point for inquiry while students remain responsible for evaluating and developing their conclusions.

Ethical Implications from an Islamic Perspective

The ethical dimension represents an important contribution of this study. AI systems may collect substantial amounts of student data, creating concerns regarding privacy, security, and misuse. Responsible data governance is necessary to maintain trust between students, teachers, institutions, and technology providers [40]. Transparency is another issue. Teachers and students should know when AI is being used and understand, as far as possible, how its outputs are generated and evaluated. Transparency strengthens accountability and reduces the possibility that AI recommendations will be treated as infallible. In Islamic Education, this requirement can be related to the principle of amanah, whereby individuals and institutions are expected to act honestly and responsibly.

Fairness is also essential. AI should not reproduce or intensify social, economic, geographical, linguistic, or cultural inequalities. Equal access to educational technology is important because Islamic Education emphasizes justice and social responsibility. The proposed integration model therefore emphasizes justice as a principle for ensuring that AI benefits are distributed fairly rather than concentrated among privileged learners [41].

The principle of tawhid provides a broader philosophical foundation for technology use. AI should remain a means for seeking knowledge and producing benefit, rather than becoming an independent authority over human values. Amanah requires responsible use and careful information management. Justice requires equitable access and non-discrimination, while responsibility requires human supervision and accountability. Thus, successful AI integration depends not only on technological sophistication but also on the ethical framework governing its use.

Implications for Islamic Education

Taken together, the findings suggest that AI integration should follow a balanced human–AI model. Educational institutions should formulate policies covering AI use, data protection, academic integrity, verification of AI-generated religious content, and teacher supervision. Professional development should strengthen educators’ AI literacy while maintaining their pedagogical and spiritual authority. Students should also be trained to use AI critically, ethically, and productively.

The study contributes a conceptual perspective connecting educational technology with Islamic ethical principles. Rather than rejecting AI because of its risks or accepting it solely because of efficiency, Islamic Education can adopt a selective and value-based approach. AI is beneficial when it strengthens learning, widens access, supports teachers, and promotes educational justice. Conversely, its use requires limitation when it threatens privacy, weakens independence, produces misinformation, or undermines the teacher’s role in character formation. Overall, the discussion confirms that the future of AI in Islamic Education depends on integration rather than substitution. Technology can enhance educational processes, but Islamic values should determine the purposes, boundaries, and responsibilities surrounding its use. Future empirical research should examine these principles in Islamic educational institutions to evaluate how AI affects learning outcomes, teacher practices, student character, and ethical decision-making.

CONCLUSION

The development of Artificial Intelligence (AI) has opened up new opportunities in the transformation of Islamic Education in the digital era. Based on the results of the literature review, AI has significant potential in improving the quality of learning through personalization of materials, expanding access to learning resources, increasing evaluation efficiency, and optimizing the management of educational administration. The presence of AI allows the learning process to be more adaptive, interactive, and in accordance with the needs of students so that it can support the achievement of educational goals more effectively. However, the implementation of AI in Islamic Education also faces various challenges, such as the limitations of technological infrastructure, low digital literacy of educators and students, potential dependence on technology, and the risk of algorithmic bias and data misuse. These challenges show that the use of AI cannot be done carelessly, but requires the readiness of human resources, policy support, and an adequate monitoring system. From the perspective of Islamic ethics, the use of AI must always be based on the values of monotheism, trust, justice, and responsibility. AI technology should be positioned as a tool that supports the educational process, not as a substitute for the role of teachers in guiding, educating, and instilling moral values in students. Thus, the integration of AI in Islamic Education needs to be directed at efforts to create a balance between technological innovation and character formation in accordance with Islamic teachings. This study concludes that the success of the integration of AI in Islamic Education is not only determined by the

sophistication of the technology used, but also by the ability of educational institutions to implement Islamic ethical values into every aspect of the use of the technology. Therefore, collaboration is needed between educators, educational institutions, technology developers, and policymakers to ensure that the use of AI is able to provide optimal benefits for improving the quality of Islamic education while maintaining its main goal of forming a generation that is knowledgeable, faithful, pious, and noble. In addition, further research is recommended to conduct empirical studies on the application of AI in Islamic educational institutions in order to gain a deeper understanding of its effectiveness, challenges, and impacts in learning practices.

Acknowledgments

The authors sincerely thank Sekolah Tinggi Ilmu Dakwah Mohammad Natsir Solo Raya for its institutional support, encouragement, and valuable assistance throughout the research process, which contributed significantly to the completion of this study and publication.

Author Contribution

Haya Huwaida contributed to conceptualization, literature review, data analysis, and manuscript preparation. Muthoifin contributed to research supervision, methodological guidance, critical revision, interpretation, and final approval of the manuscript for publication and submission to the journal.

Conflicts of Interest

The authors declare that they have no conflicts of interest related to this research or its publication. All aspects of the study were conducted independently, objectively, and without inappropriate personal, financial, or institutional influence or bias.

Use of Artificial Intelligence (AI)

The authors acknowledge that artificial intelligence tools were used solely to support language editing, grammar checking, academic readability, and sentence refinement. AI tools did not influence research design, analysis, interpretation, findings, or conclusions in the manuscript.

Funding

This research was funded by Sekolah Tinggi Ilmu Dakwah Mohammad Natsir Solo Raya, Surakarta, Indonesia. The institution provided financial support for research activities, without influencing the study design, analysis, interpretation, or publication decisions or outcomes.

REFERENCES

- [1] S. Fedorenko, K. Zhurba, I. Bekh, and O. Dokukina, "Program "Forming Adolescents' Values For A Meaningful Life In European Integration Conditions"," *Adv. Linguist.*, no. 9, pp. 60–73, Aug. 2022, <https://doi.org/10.20535/2617-5339.2022.9.261630>.
- [2] Fouad Larhzizer *et al.*, "Artificial intelligence in Islamic education: Ethics and its implications for Islamic education," *Amorti J. Stud. Islam Interdisip.*, no. 4, pp. 161–168, 2025, <https://doi.org/10.59944/amorti.v4i4.490>.
- [3] I. Supriatin, S. Syarifah, E. Susilawati, I. Supriadi, and R. Apriani, "Formulasi Etika Kecerdasan Buatan (AI) Dalam Pendidikan Islam: Pendekatan Maqāṣid al-Sharī'ah dan Tafsir Tematik Al-Qur'an," *Halaqa J. Islam. Educ.*, vol. 1, no. 2, pp. 121–140, 2025, <https://doi.org/10.61630/hjie.v1i2.28>.
- [4] F. Hakim, N. Syam, M. Ch, and A. Malik, "Intelligence in Islamic Education : Knowledge

- Integration or Ethical Alienation?" vol. 22, no. 1, pp. 111–127, 2026, <https://doi.org/10.54069/attaqwa.v22i1.1149>.
- [5] S. Chayati, S. Gunagraha, and Baidi, "Ethics of Using Artificial Intelligence in the World of Islamic Education," *J. Educ. Adm. Training, Relig.*, vol. 6, no. 1, pp. 41–53, 2025, <https://doi.org/10.38075/jen.v6i1.541>
- [6] G. Lampropoulos, B. G. Mukta, and T. Anastasiadis, "Gamification in Learning Management Systems: A Systematic Literature Review," *Information*, vol. 16, no. 12, p. 1094, Dec. 2025, <https://doi.org/10.3390/info16121094>.
- [7] Y. Hady, N. M. Krisnawati, and A. Fatima, "Artificial Intelligence (AI), the Erosion of Tacit Knowledge, and the Challenges of Cultivating Wisdom: Epistemological and Ethical Implications for 21st Century Islamic Education," *EDUKASI J. Penelit. Pendidik. Agama dan Keagamaan*, vol. 23, no. 2, pp. 430–446, 2025, <https://doi.org/10.32729/edukasi.v23i2.2407>.
- [8] S. E. Priyatna and A. C. Maseri, "Penerapan AI dan Machine Learning dalam Pendidikan Islam: Tantangan Etika dan Pendekatan Integratif Berbasis Maqāṣid Al-Syarī'ah," *Tarbiyatuna J. Pendidik. Ilm.*, vol. 10, no. 1, pp. 119–136, 2025, <https://doi.org/10.55187/tarjpi.v10i1.6236>.
- [9] Mukaffan and A. H. Siswanto, "Ethical Integration of Generative AI in Islamic Education: Toward Inclusive and Sustainable Human Capital Development," *AL-ADABIYAH J. Pendidik. Agama Islam*, vol. 6, no. 3, pp. 303–325, 2025, <https://doi.org/10.35719/adabiyah.v6i3.1178>.
- [10] P. Agama, F. Universitas, and I. Negeri, "Pendidikan Agama Islam Dan Budi Pekerti - Universitas Islam Negeri Madura," pp. 371–384, [Online]. Available: <https://iainmadura.ac.id/berita/2025/01/pendidikan-agama-islam-dan-budi-pekerti>
- [11] M. P. sandy, M. F., Palangi, W. A., Liling, D., & Pratama, "Dalam Pendidikan Tinggi," *Impelentasi Pengguna. Kecerdasan Buatan Dalam Pendidik. Tinggi*, vol. VOL. 3 No., pp. 111–117, 2023, [Online]. Available: <https://doi.org/10.47178/prosidingukit.v3i3.2295>
- [12] M. Siska, I. Siregar, A. Saputra, M. Juliana, and M. T. Afifudin, "Kecerdasan Buatan dan Big Data dalam Industri Manufaktur: Sebuah Tinjauan Sistematis," *Nusant. Technol. Eng. Rev.*, vol. 1, no. 1, pp. 41–53, 2023, <https://doi.org/10.55732/nter.v1i1.1119>.
- [13] D. R. Rochmawati, I. Arya, and A. Zakariyya, "Manfaat Kecerdasan Buatan Untuk Pendidikan," *J. Teknol. Komput. dan Inform.*, vol. 2, no. 1, pp. 124–134, 2023, <https://doi.org/10.59820/tekomin.v2i1.163>.
- [14] A. A. Rochim, "Kecerdasan Buatan: Resiko, Tantangan Dan Penggunaan Bijak Pada Dunia Pendidikan," *Antroposen J. Soc. Stud. Hum.*, vol. 3, no. 1, pp. 13–25, 2024, <https://doi.org/10.33830/antroposen.v3i1.6780>.
- [15] D. Liu, G. Fan, and L. Pan, "Tool, tutor, or crutch?: A grounded theory of cognitive scaffolding and offloading in AI-assisted programming education," *Int. J. STEM Educ.*, vol. 13, no. 1, p. 10, Mar. 2026, <https://doi.org/10.1186/s40594-025-00592-w>.
- [16] Y. Jiang, X. Li, H. Luo, S. Yin, and O. Kaynak, "Quo vadis artificial intelligence?," *Discov. Artif. Intell.*, vol. 2, no. 1, 2022, <https://doi.org/10.1007/s44163-022-00022-8>.
- [17] Z. Husin, N. F. Mustapha, C. R. Mezah, P. Toklubok@Hajimaming, and N. Abd Rahim, "Kepentingan Nahu Arab dalam Menghafaz al-Quran," *GEMA Online® J. Lang. Stud.*, vol. 16, no. 2, pp. 95–110, Jun. 2016, <https://doi.org/10.17576/gema-2016-1602-06>.
- [18] K. Agustya, Z. Salsabilla, T. Diva, F. Hadi, W. Pratiwi, and S. Mukarromah, "Prosiding Seminar Nasional Teknologi dan Sistem Informasi," no. September, pp. 6–7, 2023.
- [19] R. T. Apriadi and H. Sihotang, "Transformasi Mendalam Pendidikan Melalui Kecerdasan Buatan: Dampak Positif bagi Siswa dalam Era Digital," *J. Pendidik. Tambusai*, vol. 7, no. 3, pp. 31742–31748, 2023, [Online]. Available: <http://repository.uki.ac.id/13653/1/TransformasimendalampendidikanmelaluiAI.pdf>
- [20] K. Rukmayuninda Ririh, N. Laili, A. Wicaksono, and S. Tsurayya, "Comparative Study And Swot Analysis On Implementation Of Artificial Intelligence In Indonesia," *J. Tek. Ind.*, vol. 15, no. 2, pp. 122–133, 2020.
- [21] O. Zawacki-Richter, V. I. Marín, M. Bond, and F. Gouverneur, "Systematic review of research

- on artificial intelligence applications in higher education – where are the educators?,” *Int. J. Educ. Technol. High. Educ.*, vol. 16, no. 1, 2019, <https://doi.org/10.1186/s41239-019-0171-0>.
- [22] Redaksi, “Jurnal Teknologi Pendidikan,” *J. Teknol. Pendidik.*, vol. 8, no. 2, pp. 253–258, 2015, <https://doi.org/10.24114/jtp.v8i2.3329>.
- [23] F. F. Maimuna, N. A. F. Roroa, M. Misrah, O. Oktaviany, and A. Agit, “Transformasi Digital dalam Kewirausahaan: Analisis Faktor Penghambat dan Pendorong Perkembangan Ekonomi Digital,” *Simetris Semin. Nas. Pembang. Ekon. Berkelanjutan Dan Ris. Ilmu Sos.*, no. x, pp. 187–198, 2024.
- [24] Angelia Putriana, “Analisis Strategi Bisnis di Era Transformasi Digital,” *MUKASI J. Ilmu Komun.*, vol. 2, no. 3, pp. 223–232, 2023, <https://doi.org/10.54259/mukasi.v2i3.2105>.
- [25] E. Ahyani and E. M. Duhani, “Transformasi Digital dalam Manajemen Perkantoran Pendidikan: Sebuah Kajian Literatur,” *J. Vision. Penelit. dan Pengemb. dibidang Adm. Pendidik.*, vol. 12, no. 1, p. 205, 2024, <https://doi.org/10.33394/vis.v12i1.10785>.
- [26] R. Adolph, “Pendidikan Kewarganegaraan,” vol. 6, pp. 1–23, 2016.
- [27] Nadila, “Pemanfaatan Teknologi Digital Dalam Pembelajaran,” *JUPSI J. Pendidik. Sos. Indones.*, vol. 2, no. 1, pp. 37–46, 2024, <https://doi.org/10.62238/jupsijurnalpendidikansosialindonesia.v2i1.72>.
- [28] Surya Eka Priyatna, Ali Muammar, and Mahyuddin Barni, “Melalui Media Pembelajaran Digital,” *Bayan Lin Naas*, vol. 8, no. 2, pp. 2580–3972, 2024, [Online]. Available: <http://ejournal.unia.ac.id/index.php/bayan-linnaas>
- [29] I. Nawawi, “Pengaruh Kegiatan Keagamaan terhadap Disiplin Siswa di Sekolah Berbasis Pesantren,” *J. Pendidik. Karakter*, vol. 11, pp. 305–316, 2020.
- [30] Novi Algi Alviani and Munawaroh Munawaroh, “Transformasi Digital pada UMKM dalam Meningkatkan Daya Saing Pasar,” *MASMAN Master Manaj.*, vol. 3, no. 1, pp. 134–140, 2025, <https://doi.org/10.59603/masman.v3i1.717>.
- [31] U. Albab, “Vol. 5 No. 1 (2021),” *Perenc. Pendidik. dalam Manaj. Mutu Terpadu Pendidik. Islam*, vol. 5, no. 1, pp. 119–126, 2021, <https://doi.org/10.26740/jdmp.v5n1.p1-9>.
- [32] A. L. Panji, A. R. Afendi, A. Ramli, S. Sudadi, and A. Mubarak, “Pendidikan Islam Dengan Penanaman Nilai Budaya Islami,” *J. Pendidik. Islam Al-Ilmi*, vol. 6, no. 1, p. 9, 2023, <https://doi.org/10.32529/al-ilmi.v6i1.2155>.
- [33] M. Eksistensi, P. Islam, and D. I. Era, “Pendahuluan Seiring dengan perkembangan zaman , tantangan dan hambatan pendidikan Islam juga terus mengalami perkembangan dan perubahan . Jika pada beberapa dekade silam percakapan akrab antara peserta didik dengan guru terasa tabu , maka hari ini justru ,” vol. 1, no. 2, pp. 221–239, 2018.
- [34] S. Analisis and P. Agama, “REAL DIDACHE : Journal of Christian Education Inovasi Pembelajaran Digital dalam Meningkatkan Motivasi Belajar Siswa :,” *J. Christ. Educ.*, vol. 2, no. 2, pp. 90–100, 2022, <https://doi.org/10.53547/rdj.v2i2.242>.
- [35] Hasna Nur Alifah, Umi Virgianti, Muhammad Imam Zamah Sarin, Dicky Amirul Hasan, Fina Fakhriyah, and Erik Aditia Ismaya, “Systematic Literature Review: Pengaruh Media Pembelajaran Digital pada Pembelajaran Tematik Terhadap Hasil Belajar Siswa SD,” *J. Ilm. Dan Karya Mhs.*, vol. 1, no. 3, pp. 103–115, 2023, <https://doi.org/10.54066/jikma.v1i3.463>.
- [36] W. Sri et al., “Inovasi Pembelajaran Digital : Meningkatkan Efektivitas Pembelajaran Di Era Transformasi Teknologi,” *J. Educ. Dev. Inst. Pendidik. Tapanuli Selatan*, vol. 13, no. 1, pp. 518–525, 2025.
- [37] R. Budi Santoso, “Pemanfaatan media pembelajaran digital padlet sebagai solusi pembelajaran di masa pandemi Covid-19,” *Educenter J. Ilm. Pendidik.*, vol. 1, no. 5, pp. 478–485, 2022, <https://doi.org/10.55904/educenter.v1i5.166>.
- [38] Riska Aini Putri, “Pengaruh Teknologi dalam Perubahan Pembelajaran di Era Digital,” *J. Comput. Digit. Bus.*, vol. 2, no. 3, pp. 105–111, 2023, <https://doi.org/10.56427/jcbd.v2i3.233>.

- [39] A. I. Mahardika, N. A. B. Saputra, A. A. A. Muda, A. Riduan, N. S. Luzuardi, and N. Nurmalinga, “Pelatihan Pengembangan Evaluasi Pembelajaran Digital Menggunakan Quizizz bagi Guru di Kota Banjarmasin,” *J. Abdimas Prakasa Dakara*, vol. 3, no. 1, pp. 1–9, 2023, <https://doi.org/10.37640/japd.v3i1.1540>.
- [40] A. N. Qowim, “Metode Pendidikan Islam Perspektif Al-Qur’an,” *IQ (Ilmu Al-qur’an) J. Pendidik. Islam*, vol. 3, no. 01, pp. 35–58, 2020, <https://doi.org/10.37542/iq.v3i01.53>.
- [41] A. Khairunnisa and T. W. Apoko, “Pengembangan Media Pembelajaran Digital Berbasis Aplikasi Canva Pada Mata Pelajaran Pendidikan Pancasila dan Kewarganegaraan Untuk Sekolah Dasar,” *J. Kewarganegaraan*, vol. 20, no. 2, p. 191, 2023, <https://doi.org/10.24114/jk.v20i2.48898>.
- [42] M. Sakir, “Pendidikan Islam Dalam Sistem Pendidikan Nasional,” *Cendekia J. Kependidikan dan Kemasyarakatan*, vol. 12, no. 1, p. 103, 2016, <https://doi.org/10.21154/cendekia.v12i1.370>.
- [43] I. W. Ayu, Z. Zulkarnaen, and S. Fitriyanto, “Budaya Digital Dalam Transformasi Digital Menghadapi Era Society 5.0,” *J. Pengemb. Masy. Lokal*, vol. 5, no. 1, pp. 20–25, 2022, <https://doi.org/10.58406/jpml.v5i1.922>.